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martineau@l-m.ca

Our file: 3121-1A-1

Date: September 10, 2008

DUE DATE: September 21, 2008
and Postal confirmation

American Patent Application No.: 10/585,096

Filed: January 7th, 2005

PCT Application N°: PCT/CA2005/000018

Int. Filing Date: January 7, 2005

Priority Date: January 12, 2004

Inventor(s): BRAULT Jean, KRICK Thierry, ROY Annie

Applicant(s): SYSTEMES DE MOBILIER TRIANGLE INC.

Title: WORKTABLE COMPRISING A MULTIDIRECTIONAL
COUPLING

ATTENTION: PCT Legal Examiner - Mr. George DOMBROSKE

RENEWED PETITION Under 37 CFR 1.47(a)

Assistant Commissioner for Patents

Mail Stop PCT

P.O. Box 1450,

Alexandria, VA 22313-1450

U.S.A.

Fax @ 1-571-273-0459

ATTENTION : Office of PCT Legal Administration

Sirs:

This is pursuant to the Decision on Petition dated July 21, 2008, with a delay for reply expiring two (2) months from this mailing date, namely, on September 21, 2008.

Accordingly, we hereby file for reconsideration on the merits of this **Petition Under 37 CFR 1.47 (a)** for acceptance of an oath or declaration without the signature of all inventors. Indeed, one of the inventors, Mr. Jean BRAULT, refuses to sign or cannot be reached. In support of our said petition, we enclose the following:

1. A duplicate copy of the Notification of missing requirements under 35 USC 371 dated 21 March 2008; (already submitted on May 14, 2008)
2. A proof of pertinent facts. This proof of pertinent facts includes a statement of facts in the form of an revised Affidavit executed by Mrs. Annie ROY, dated 8 September 2008, one of the inventors in the present patent application and a person claiming to have first hand knowledge of the facts recited herein, together with copies of documentary evidence, including certified mail return receipt supporting a finding that the non signing inventor could be reached but would not return the signed document; a copy of the revised completed Declaration and Power of Attorney, (Form PTO/SB/105 (2-98)) returned unsigned by third inventor, Jean Brault;
3. The last known post office address of inventor Jean BRAULT is the following : 190, 51^e avenue, Lachine, (Quebec) CANADA H8T 2W2;
4. All petition fees have already been paid on May 14, 2008.

In the Decision on Petition of July 21, 2008, legal Examiner Dombroske objects to the Declaration of ownership filed on May 2nd, 2008 and signed by joint inventors Roy and Krick on behalf of themselves and of Jean Brault, in that the Declaration form is not identical to form PTO/SB/105 (2-98)).

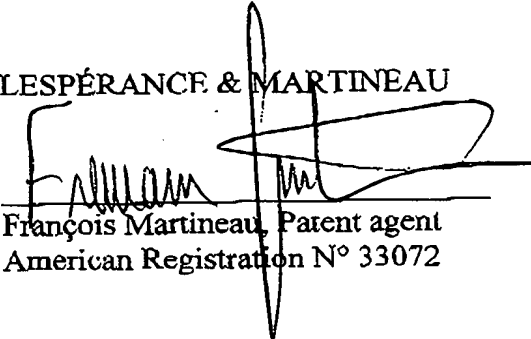
I claim to be fluent in both the English and French languages, and therefore provide the statement that to the best of my abilities, the French language section of the bilingual French language declaration form used as the Declaration of ownership filed on May 2nd, 2008 is an accurate translation in French of the English language section thereof.

We believe that all outstanding issues have been dealt with. However if any other minor issue needs to be resolved, the Legal Examiner is kindly asked to call the the undersigned at phone N° (514) 861-4831.

A favourable action is solicited.

Very truly yours,

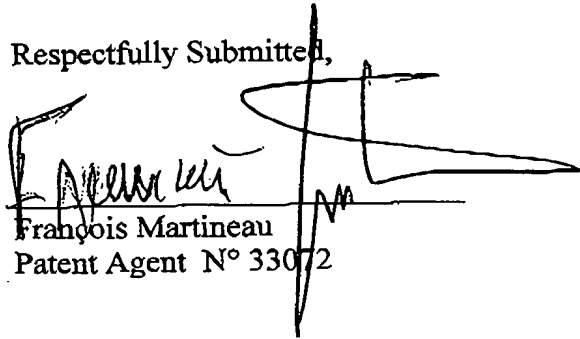
LESPÉRANCE & MARTINEAU


François Martineau, Patent agent
American Registration N° 33072

CERTIFICATE OF TRANSMITTAL BY FAX

It is hereby certified that this petition, consisting of 36 sheets including the annexes, is being facsimile transmitted to the United States patent and trademark office on September 10, 2008 at fax N° 1-571-273-0459.

Respectfully Submitted,


François Martineau
Patent Agent N° 33072

FM/fd
U04
Encl.

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Commissioner for Patents

U.S. Patent Application Number: 10/585,096

International Application No.: PCT/CA2005/000018

U.S. Filing Date: 01/07/2005

Priority Date: 01/12/2004

Applicant: Systèmes de mobilier Triangle Inc.

Invention Title: Worktable comprising a multidirectional coupling

Joint-inventors: Mr. Jean Brault, Mr. Thierry Krick and Mrs. Annie Roy

Affidavit of Mrs. Annie Roy

I, undersigned, resident at 58 des Ducats, Blainville City, Quebec province, solemnly declare the followings:

1. I am employed by Triangle Furniture Systems Inc. (hereunder named Triangle) since April 1999 and I am the R&D Director, presently on maternity leave.
2. As the Research & Development Director since 2004, I am perfectly aware of all the product development performed at Triangle, including the product forming the subject matter of the present patent application.
3. As one of the joint-inventors and as the R & D Director, I have an excellent knowledge of the events described in this affidavit.
4. Since no other actual Director or Manager was there at the time of the events, I am empowered to subscribe the present affidavit in response to the notification of the United States Patent and Trademarks Office dated March 21st 2008, under the U.S. application number 10/585,096, for an invention named *Worktable comprising a multidirectional coupling* (hereunder named the invention).
5. On April 9th 2008, Triangle received a letter from the United States Patent and Trademark Office, notifying us that the declaration of the inventors filed on 06/30/2006 does not comply with 37 CFR 1.497(a) and (b) because the signature of one of the co-inventors, Mr. Jean Brault, was missing.
6. On April 25th 2008, an assignment was transmitted to Mr. Jean Brault's residence and the document reception was acknowledged. The assignment was requesting him to transfer the entire right, title and interest in the invention to Triangle. Within the 15 days window allowed for return, Mr. Brault has not returned to us any such signed assignment.
7. On July 29th, 2008, we received a decision on petition dated July 21st, 2008 from the U.S. patent and trademark office.

8. On August 14th, 2008, a declaration and Power of attorney form directed toward the instant patent application and a complete copy of the patent application papers were transmitted to Mr. Jean Brault's residence and the document reception was acknowledge on August 15th, 2008.
9. Within the 15 days window allowed for return, Mr. Brault has not returned to us any such declaration and power of attorney.

The following facts briefly describe the mission of Triangle. It then explains the development of the invention and describes the happenings at the time and after Triangle has been acquired by Planmeca Oy.

The mission of Triangle

10. Triangle Furniture Systems has been founded in 1979 by Mr. Jean Brault and Mr. Jean-Pierre Morin. At the time, the company name was Atelier des Érables.
11. From a company building kitchen cabinetry, the company evolved towards the fabrication of dental environment and the company name became Nouvelle Clinique.
12. Through deep researches on asepsis and infection control, the business, then named Triangle, specialized itself in Sterilization and Treatment Centers for the dental market. The countries into which Triangle was established are Canada, USA and France.
13. Mr. Morin was acting as the Production Manager and the Technical advisor while Mr. Brault was focusing on Sales, Marketing and Product Management. As the president of the company, Mr. Brault was also responsible for the general administration.
14. The association between Mr. Jean Brault and Mr. Jean-Pierre Morin has been terminated in September 1998 and Mr. Morin left the company at that moment.
15. Mr. Brault stayed President of the company until he left in December 2005.

Development of the invention.

16. As it appears in the application 10/585,096, the three inventors are Mr. Thierry Krick, Mr. Jean Brault, and Mrs. Annie Roy. Each of these inventors has participated in the conception and the development of the invention.
17. The preliminary idea of the invention came from Mr. Brault, when observing a 3 axles mechanism Mr. Krick and Mrs. Roy were working on for another topic.
18. Mr. Krick and Mrs Roy were in charge of the development of the invention, including prototyping and testing. Mr. Brault was responsible, as the President of Triangle, to approve the different steps of the development and to evaluate the commercial value of the invention.

19. The application was filed in the U.S. on July 1st 2005.

Planmeca Oy's acquiring Triangle Furniture Systems Inc.

20. On July 10th 2005, Planmeca Oy (hereunder Planmeca), an incorporated society registered upon the requirements of Finland, has acquired every share of Triangle held by Mr. Brault.
21. Without knowing all the transaction's details, I can confirm that following the acquisition of Triangle by Planmeca, Planmeca has become the single owner of Triangle.
22. According to the selling convention, all business assets of Triangle, including the intellectual property (IP) belonging to Triangle and its share holders, remained the exclusive property of Triangle. None of the anterior share holders kept any IP rights in these assets.
23. Triangle remained the business name of the company.
24. At the time of the application to the United States Patent and Trademark Office, Mr Brault was still the owner and the President of Triangle.
25. Following the purchase by Planmeca, Mr. Brault remained General Manager, but some of his administrative responsibilities were transferred to other persons. The relationship between Mr. Brault and Planmeca quickly deteriorated.
26. Unsatisfied of the events since the acquisition by Planmeca, Mr. Brault decided to leave the company in December 2005.

Conclusion

27. As explained in the present affidavit, Mr. Brault has participated in the creation and the development of the invention. He was at the time owner and President of Triangle.
28. Owing to circumstances subsequent to the acquisition of all Triangles' share by Planmeca, Mr. Brault has broken the business relationship with Triangle.
29. Therefore, I hereby declare that Mr. Brault has refused to execute the declaration and power of attorney directed toward the instant patent application after being presented with a complete copy of the patent application papers.
30. Considering the past events and the way the relationship between Mr. Brault and Triangle ended, I believe it will be impossible to obtain Mr. Brault's signature for the transfer of the entire right, title and interest in the invention to Triangle

31. Triangle is holding all the business assets of the company, including the intellectual property and none of the anterior share holders have kept any IP rights.

32. All facts mentioned in the present affidavit are true.

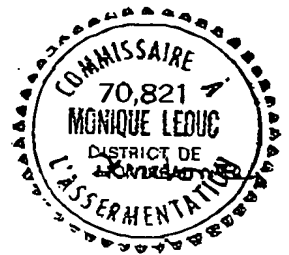
Signed :

Annie Roy

Sworn under oath on September 8th 2008 in Blainville, Québec Province.

Monique Leduc

Commissaire à l'assermentation



PLANMECA

triangle

Le 13 août 2008,

M. Jean Brault
190, 51 ième Avenue
Lachine (Québec)
H8T 2W2

Monsieur Brault,

Vous trouverez ci joint le document « Déclaration et Pouvoirs pour demande de brevet » ainsi que la copie complète de la demande de brevet : « Worktable comprising a multidirectional coupling » déposée aux États-Unis le 07 janvier 2005 sous le numéro 10/585,096.

Nous vous demandons de signer les deux documents ci-joints et nous les retourner dans les quinze (15) jours de sa réception.

Bien vôtre,



Mme Annie Roy,
Directrice département recherche et développement
Systèmes de Mobilier Triangle Inc.

PLANMECA

triangle

August 13 2008,

Mr. Jean Brault
190, 51 ième Avenue
Lachine (Québec)
H8T 2W2

Mr. Brault,

You will find attached the document « Declaration and Power of Attorney for Patent Application » as well as a completed copy of the request "Worktable comprising a multidirectional coupling" deposited in the United States of America, on January 7th 2005, with the following number 10/585,096.

We request that you sign both documents and return them within (15) days following its reception.

Sincerely,



Mme Annie Roy,
Directrice département recherche et développement
Systèmes de Mobilier Triangle Inc.

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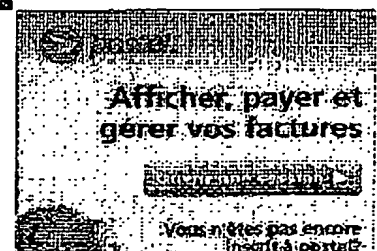
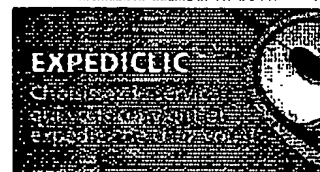
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Declaration and Power of Attorney for Patent Application

Déclaration et Pouvoirs pour Demande de Brevet

French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

As a below named inventor, I hereby declare that:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

My residence, post office address and citizenship are as stated next to my name.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

WORKTABLE COMPRISING A MULTIDIRECTIONAL COUPLING

et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:

the specification of which is attached hereto unless the following box is checked:

☐ a été déposée le _____
sous le numéro de demande des Etats-Unis ou le
numéro de demande international PCT
_____ et modifiée le
_____ (le cas échéant).

☒ was filed on 07/01/2005
as United States Application Number or PCT
International Application Number
US 10/585,096 and was amended on
_____ (if applicable).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

(Page 1 of 1)

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

(Number)	(Country)
(Numéro)	(Pays)

(Number)	(Country)
(Numéro)	(Pays)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

PCT/CA2005/000018 (07/01/2005)

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)
US60/535,519	(12/01/2004)

(Application No.)	(Filing Date)
(N° de demande)	(Date de dépôt)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365 (b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Claimed
Droit de priorité revendiqué

(Day/Month/Year Filed)	<input type="checkbox"/>
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(Day/Month/Year Filed)	<input type="checkbox"/>
(Jour/Mois/Année de dépôt)	

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

(Status) (patented, pending, abandoned)
(Statut) (breveté, en cours d'examen, abandonné)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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French Language Declaration

POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

LESPERANCE & MARTINEAU (1.) François Martineau N° 33072 & (2.) Louis Martineau N° 4367
Adresser toute correspondance à: Send Correspondence to:

François Martineau N° 33072 Louis Martineau N° 43676 Tel. N° 514-861-4881
Adresser tout appel téléphonique à: Direct Telephone Calls to:
(nom et numéro de téléphone) (name and telephone number)
1440, Ste-Catherine Street west, office 700

Montreal, Quebec H2G 1R8 CANADA

Nom complet de l'unique ou premier inventeur	Full name of sole or first inventor	Jean BRAULT
Signature de l'inventeur	Inventor's signature	Date
Domicile	Residence	Lachine, Quebec, CANADA
Nationalité	Citizenship	Canadian
Adresse postale	Post Office Address	660, 50 ^{ème} Avenue Lachine, Quebec H8T 2T8 CANADA
Nom complet du second co-inventeur, le cas échéant	Full name of second joint inventor, if any	Annie ROY
Signature du second inventeur	Second Inventor's signature	Date
Domicile	Residence	Montreal, Québec, CANADA
Nationalité	Citizenship	Canadian
Adresse postale	Post Office Address	2628, Felix Leclerc Montreal, Quebec H4R 3E7 CANADA

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)

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French Language Declaration

POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques: (mentionner le nom et le numéro d'enregistrement).

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)

Adresser toute correspondance à:

Send Correspondence to:

Adresser tout appel téléphonique à:
(nom et numéro de téléphone)

Direct Telephone Calls to:
(name and telephone number)

Nom complet de l'unique ou premier inventeur	Full name of sole or first inventor	Thierry KRICK
Signature de l'inventeur	Inventor's signature	Third
Date	Date	
Domicile	Residence	Coteau-du-Lac, Quebec, CANADA
Nationalité	Citizenship	Canadian
Adresse postale	Post Office Address	51 de Bienville Coteau-du-Lac, Quebec JOP 1B0 CANADA.
Nom complet du second co-inventeur, le cas échéant	Full name of second joint inventor, if any	
Signature du second inventeur	Second Inventor's signature	
Date	Date	
Domicile	Residence	
Nationalité	Citizenship	
Adresse postale	Post Office Address	

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)

TITLE OF THE INVENTION: WORKTABLE COMPRISING A
MULTIDIRECTIONAL COUPLING

CROSS-REFERENCE DATA

5 The present application claims the conventional priority under the Paris Convention of provisional patent application No. 60/535,519 filed in the United States on January 12, 2004 in the name of the present inventors.

FIELD OF THE INVENTION

10 The present invention relates to worktables, and more particularly to a worktable comprising a multidirectional coupling.

BACKGROUND OF THE INVENTION

15 It is known to provide worktables that have a movable work platform supported by a base. However, these known worktables do not allow a versatile displacement of the work platform. For example, known prior art worktables have a rotatable work platform that is rotatable and that is further movable along a single linear axis. This lack of displacement capacity is often problematic.

20 SUMMARY OF THE INVENTION

The present invention relates to a worktable comprising:

- a work platform; and
- a multidirectional coupling for operatively attaching said work platform to an external structure, said multidirectional coupling comprising:
 - 25 - a first linear assembly comprising a first translation member and a second translation member engaging said first translation member and linearly movable relative to and along said first translation member between first and second limit positions and according to a first translation axis;
 - a second linear assembly comprising a third translation member and a

fourth translation member engaging said third translation member and linearly movable relative to and along said third translation member between third and fourth limit positions and according to a second translation axis that is transversal to said first translation axis; and

- 5 - a swivel assembly comprising a first swivel member and a second swivel member engaging said first swivel member and rotatable relative to said first swivel member about a swivelling axis that is transversal to both said first and said second translation axes;

wherein said work platform is allowed to be displaced along said first and second translation axes and rotated about said swivelling axis at any position of said work platform when said multidirectional coupling operatively attaches said work platform to the external structure.

In one embodiment, said second and third translation members are integrally attached to a guide member, said first translation member being a first elongated rail slidable relative to and along said guide member along said first translation axis by the engagement of said first rail on said guide member, and said fourth translation member being a second elongated rail slidable relative to and along said guide member along said second translation axis by the engagement of said second rail on said guide member.

20 In one embodiment, said first swivel member is fixedly attached to said second rail, said second swivel member is fixedly attached to said work platform, and said first rail is destined to be attached to the external structure.

In one embodiment, said first and second rails have substantially flat elongated main bodies provided with incurved flanges that slidably engage corresponding grooves on said guide member that respectively form said second and third translation members.

In one embodiment, said first and second rails comprise stoppers at the respective extremities of their said elongated main bodies, said guide member being movable relative to said first and second rails along said first and second translation

axes between said stoppers on which said guide member can abut, with said stoppers defining said first, second, third and fourth limit positions.

In one embodiment, said first and second translation axes and said swivelling axis are all perpendicular to one another.

5

DESCRIPTION OF THE DRAWINGS

In the annexed drawings:

Figure 1 is a perspective view of the worktable according to the present invention, operatively installed on an external structure, for use by a person located near the worktable;

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Figure 2 is an enlarged top perspective view of the worktable of figure 1, with the work platform being shown transparent and in dotted lines to allow the multidirectional coupling to be clearly visible;

Figure 3 is an exploded perspective view of the work table of figure 2 with the work platform in full lines;

15

Figure 4 is an enlarged cross-sectional view of the work table taken along line IV-IV of figure 2, with the work platform and the first rail being only partly shown;

Figure 5 is an enlarged view of the area circumscribed by line V-V of figure 3;

20

Figure 6 is a top plan view of the multidirectional coupling of the worktable of figures 1-4, suggesting with arrows the different displacement capacities allowed by the multidirectional coupling; and

Figure 7 is a top plan view of the work table of the present invention, showing in full lines a first exemplary position of the work platform, and in dotted lines second and third exemplary positions of the work platform, as allowed by the multidirectional coupling of the worktable.

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DETAILED DESCRIPTION OF THE EMBODIMENTS

Figure 1 shows a worktable 20 according to the present invention, to be operatively installed on an external structure such as a table T, or on any other suitable alternate external structure. For example, worktable 20 could be supported
 5 over ground between spaced-apart support elements (not shown). Although not limited to such specific fields of use, worktable 20 is especially adapted for use in specialized professional fields wherein a distinctive, independent and movably versatile worktable is required. For example, this may be the case in the medical or dental fields, where instruments, supplies and apparatuses used by the practitioners
 10 may be installed on worktable 20 for easy access thereto, while defining a specific area for these elements.

Figures 1-4 show that worktable 20 comprises a work platform 22 and a multidirectional coupling 24 for operatively attaching work platform 22 to the external structure T.

15 In the embodiment shown in the annexed drawings, and as seen more specifically in figure 4, work platform 22 is made of two superposed layers, namely a layer of wood 26 and a layer of a composite surface made of polymer and ceramic. It is understood however that work platform 22 could be made of any suitable material, and could be made for example as a unitary platform member.

20 Figures 1-4 shows that multidirectional coupling 24 comprises a first rail 32 that defines a substantially flat elongated main body 34 provided with incurved flanges 36, 38 along the two longitudinal side edges of main body 34.

A guide member 40 is slidable along first rail 32. As further shown in figure 5, guide member 40 comprises a generally rectangular flat main body 42
 25 provided with a first pair of grooves 44, 46 on two opposite side edges thereof, with flanges 36 and 38 of first rail 32 respectively engaging grooves 44 and 46 (as suggested in figure 3) to provide for a sliding relative interconnection of guide member 40 along elongated first rail 32. Stoppers 48 fixedly attached at the two extremities of first rail 32 prevent guide member 40 from disengaging first rail 32 by allowing guide

member 40 to abut thereon. Thus, guide member 40 may slide along a sliding channel formed along first rail 32 between flanges 36, 38, between two limit positions that correspond to the abutment of guide member 40 against the stoppers 48 at the opposite extremities of first rail 32.

5 Guide member 40 also comprises a second pair of grooves 50 and 52 that are also located on opposite side edges of guide member 40, albeit on different edges than those of the first pair of grooves 44, 46.

Multidirectional coupling 24 further includes a second rail 54 that defines a substantially flat elongated main body 56 provided with incurved flanges 58, 60 along the two longitudinal side edges of main body 56. Flanges 58 and 60 of second rail 54 respectively engage grooves 50 and 52 of guide member 40 (as shown in figures 3 and 4) to provide for a sliding relative interconnection of guide member 40 along elongated second rail 54. Stoppers 62 fixedly attached at the two extremities of second rail 54 prevent guide member 40 from disengaging second rail 54 by allowing guide member 40 to abut thereon. Thus, guide member 40 may also slide along a sliding channel formed along second rail 54 between flanges 58, 60, between two limit positions that correspond to the abutment of guide member 40 against the stoppers 60 at the opposite extremities of second rail 54.

It can be seen that the first and second pairs of grooves 44, 46 and 50, 52 are vertically offset, i.e. the first pair of grooves 44, 46 is lower than the second pair of grooves 50, 52 on the respective sides edges of guide member 40, to allow guide member 40 to simultaneously be engaged by each one of first and second rails 32, 54 that will be allowed to slide relative to guide member 40 at all times notwithstanding the presence or position of the other one of first and second rails 32, 54. Indeed, first rail 32 will slide underneath guide member 40 and will engage first pair of grooves 44, 46 that is located near the lower surface of guide member 40, while second rail 54 will slide over guide member 40 and will engage second pair of grooves 50, 52 that is located near the upper surface of guide member 40.

Optional lubrication means can be provided between first and second

rails 32, 54 and guide member 40. For example, in the embodiment shown in the drawings, grease-oversaturated U-shaped lubrication strings 64 are inserted in corresponding openings 66 that allow strings 64 to protrude slightly within corresponding grooves 44, 46, 50, 52. Thus, as first and second rails 32, 54 move
 5 relative to guide member 40, the flanges 36, 38, 58, 60 of first and second rails 32, 54 will slide within grooves 44, 46, 50, 52 and within the channels formed by the U-shaped strings 64, the latter gradually freeing lubricating grease to facilitate the sliding engagement of rails 32, 54 relative to guide member 40.

It is noted that first rail 32 and first pair of grooves 44, 46 of guide
 10 member 40 define a first linear assembly comprising:

- a first translation member formed by first rail 32 and its flanges 36, 38; and
- a second translation member formed by guide member 40 and its first pair of grooves 44, 46.

This second translation member engages first rail 32 and is linearly
 15 movable relative to and along first rail 32 according to a first translation axis.

Also, guide member 40 and its second pair of grooves 50, 52 together with second rail 54 define a second linear assembly comprising:

- a third translation member formed by guide member 40 and its second pair of grooves 50, 52; and
- 20 - a fourth translation member formed by second rail 54 and its flanges 58, 60.

The second rail 54 engages this third translation member and is linearly movable relative to and along guide member 40 and its second pair of grooves 50, 52 according to a second translation axis that is transversal to the first translation axis.

In the embodiment shown in the drawings, guide member 40 is rectangular and the
 25 second translation axis is perpendicular to the first translation axis, although it is understood that in alternate embodiments of the invention (not shown) the first and second translation axes could be transversal without however being perpendicular.

Multidirectional coupling 24 also comprises a swivel assembly 68 that comprises first and second rotatable swivel members 70, 72 both in the form of discs

which are superposed atop one another and which rotatably engage each other so as to allow relative rotation of first and second swivel members 70, 72 about a swivelling axis that is transversal to both the first and the second translation axes. In the embodiment shown in the drawings, the swivelling axis is more particularly perpendicular to the first and second translation axes. Swivel members 70, 72 are spaced-apart from each other by means of a low-friction intermediate disc 74 that facilitates the relative rotation of swivel members 70, 72. For example, swivel members 70, 72 may be made of metal, whereas intermediate disc 74 may be made of a low-friction material such as TEFLON (registered trademark). A series of balls 76 are peripherally installed in a channel formed between swivel members 70, 72, as in many convention ball-bearing swivel members. An annular central clip 78 retains swivel members 70, 72 in their proximate engagement.

First swivel member 70 is fixedly attached to second rail 54 centrally thereof and opposite the sliding channel formed between flanges 58, 60, and second swivel member 72 is fixedly attached underneath work platform 22.

In use, first rail 32 is to be fixed to the external structure, such as table T, which is to support worktable 20. As suggested in figure 6, multidirectional coupling 24 allows the displacement of work platform 22 relative to the external structure to which it is attached by means of multidirectional coupling 24, along the transversal first and second translation axes, in addition to allowing the rotation of work platform 24 about the swivelling axis. Indeed, work platform 22 may be moved along the first translation axis by sliding guide member 40 along first rail 32. Work platform 22 may further be moved along the second translation axis by sliding second rail member 54 atop guide member 40. And work platform 22 may finally be swivelled about its swivelling axis by rotating second swivel member 72 relative to first swivel member 70. All of these displacements of work platform 22 may be accomplished by manually forcing work platform 22 in the desired direction. Multiple simultaneous displacements are also possible: work platform may for example be moved diagonally along a direction including first and second translation axis vectorial

components while simultaneously being pivoted about its swivelling axis.

Moreover, the displacement of work platform 22 along the first translation axis is allowed at any position of work platform along second rail 54; the displacement of work platform 22 along the second translation axis is allowed at any position of work platform 22 along first rail 32; and a full 360° swivelling displacement of work platform 22 is allowed at any position of work platform 22 along both first and second rails 32, 54. Indeed, the sliding relationship of guide member 40 within the respective first and second rail sliding channels, and the swivelling capacity of swivel assembly 68, are not hindered by the structural components of worktable 20, nor are they limited thereby.

Figure 7 shows examples of positions that can be adopted by work platform 22. In all positions shown in figure 7, first rail 32 is fixed (presumably to an external structure such as table T of figure 1), and guide member 40 (concealed in figure 7) is located at the right-hand side (in figure 7) extremity of first rail 32. In a first position of work platform 22 shown in full lines, second rail 54 is centered relative to first rail 32, i.e. second rail 54 is positioned in its sliding engagement with guide member 40 so that guide member 40 is located centrally along second rail 54. Moreover, second swivel member 72 of swivel assembly 68 is positioned in a first angular position such that work platform 22 is generally parallel to second rail 54.

A second position of work platform 22' is shown in dotted lines with reference numbers of elements which are positioned differently than at the first position of work platform 22 being primed. In this second position of work platform 22', second rail 54 is at a same position relative to first rail 32 and to guide member 40 than in the first position of work platform 22, but second swivel member 72 (concealed in figure 7) of swivel assembly 68' is pivoted so that work platform 22' is angularly offset relative to its first position of about 45°.

A third position of work platform 22" is shown in dotted lines with reference numbers of elements which are positioned differently than at the first position of work platform 22 being double primed. In this third position of work

platform 22", second rail 54" is moved along guide member 40 until guide member 40 is located at one end of second rail 54", and second swivel member 72 (concealed in figure 7) of swivel assembly 68" is pivoted so that work platform 22" is further angularly offset relative to its first position in an angular position that is generally parallel to first rail 32.

The above positions 22, 22' and 22" of the work platform shown in figure 7 are exemplary only, and it is understood that they are by no means restrictive.

In alternate embodiments of the invention, the order in which the first linear and second linear assemblies and the swivelling assembly are provided, could be shuffled to provide for example a multidirectional coupling where the swivelling assembly would be located between the two linear assemblies. In such a case, the work platform would be fixed to one of the two linear assemblies.

The lengths of the first and second rails 32, 54 are shown to be different in the annexed drawings, with second rail 54 being shorter than first rail 32, but it is understood that first and second rails 32, 54 could have any suitable selected relative lengths.

I CLAIM:

1. A worktable comprising:

- a work platform; and
- a multidirectional coupling for operatively attaching said work platform to an external structure, said multidirectional coupling comprising:

- a first linear assembly comprising a first translation member and a second translation member engaging said first translation member and linearly movable relative to and along said first translation member between first and second limit positions and according to a first translation axis;

- a second linear assembly comprising a third translation member and a fourth translation member engaging said third translation member and linearly movable relative to and along said third translation member between third and fourth limit positions and according to a second translation axis that is transversal to said first translation axis; and

- a swivel assembly comprising a first swivel member and a second swivel member engaging said first swivel member and rotatable relative to said first swivel member about a swivelling axis that is transversal to both said first and said second translation axes;

wherein said work platform is allowed to be displaced along said first and second translation axes and rotated about said swivelling axis at any position of said work platform when said multidirectional coupling operatively attaches said work platform to the external structure.

2. A worktable as defined in claim 1, wherein said second and third translation members are integrally attached to a guide member, said first translation member being a first elongated rail slidable relative to and along said guide member along said first translation axis by the engagement of said first rail on said guide member, and said fourth translation member being a second elongated rail slidable relative to and along said guide member along said second translation axis by the engagement of said second rail on said

guide member.

3. A worktable as defined in claim 2, wherein said first swivel member is fixedly attached to said second rail, said second swivel member is fixedly attached to said work platform, and said first rail is destined to be attached to the external structure.

4. A worktable as defined in claim 3, wherein said first and second rails have substantially flat elongated main bodies provided with incurved flanges that slidably engage corresponding grooves on said guide member that respectively form said second and third translation members.

5. A worktable as defined in claim 4, wherein said first and second rails comprise stoppers at the respective extremities of their said elongated main bodies, said guide member being movable relative to said first and second rails along said first and second translation axes between said stoppers on which said guide member can abut, with said stoppers defining said first, second, third and fourth limit positions.

6. A worktable as defined in claim 1, wherein said first and second translation axes and said swivelling axis are all perpendicular to one another.

7. A multidirectional coupling for use in attaching a work platform to an external structure, comprising:

- a first linear assembly comprising a first translation member and a second translation member engaging said first translation member and linearly movable relative to and along said first translation member between first and second limit positions and according to a first translation axis;

- a second linear assembly comprising a third translation member and a fourth translation member engaging said third translation member and linearly movable relative to and along said third translation member between third and fourth limit positions and

according to a second translation axis that is transversal to said first translation axis; and
 - a swivel assembly comprising a first swivel member and a second swivel member engaging said first swivel member and rotatable relative to said first swivel member about a swivelling axis that is transversal to both said first and said second translation axes.

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8. A worktable as defined in claim 7, wherein said second and third translation members are integrally attached to a guide member, said first translation member being a first elongated rail slidable relative to and along said guide member along said first translation axis by the engagement of said first rail on said guide member, and said fourth
 10 translation member being a second elongated rail slidable relative to and along said guide member along said second translation axis by the engagement of said second rail on said guide member.

9. A worktable as defined in claim 8, wherein said first swivel member
 15 is fixedly attached to said second rail, said second swivel member is destined to be fixedly attached to said work platform, and said first rail is destined to be attached to the external structure.

10. A worktable as defined in claim 9, wherein said first and second rails
 20 have substantially flat elongated main bodies provided with incurved flanges that slidably engage corresponding grooves on said guide member that respectively form said second and third translation members.

11. A worktable as defined in claim 10, wherein said first and second rails
 25 comprise stoppers at the respective extremities of their said elongated main bodies, said guide member being movable relative to said first and second rails along said first and second translation axes between said stoppers on which said guide member can abut, with said stoppers defining said first, second, third and fourth limit positions.

12. A worktable as defined in claim 7, wherein said first and second translation axes and said swivelling axis are all perpendicular to one another.

ABSTRACT OF THE DISCLOSURE

The worktable comprises a work platform and a multidirectional coupling for operatively attaching the work platform to an external structure. The multidirectional coupling comprises a first linear assembly comprising a first translation member and a second translation member engaging the first translation member and linearly movable relative to and along the first translation member between first and second limit positions and according to a first translation axis. The multidirectional coupling also includes a second linear assembly comprising a third translation member and a fourth translation member engaging the third translation member and linearly movable relative to and along the third translation member between third and fourth limit positions and according to a second translation axis that is transversal to the first translation axis. The multidirectional coupling further includes a swivel assembly comprising a first swivel member and a second swivel member engaging the first swivel member and rotatable relative to the first swivel member about a swivelling axis that is transversal to both the first and the second translation axes. The work platform is allowed to be displaced along the first and second translation axes and rotated about the swivelling axis at any position of the work platform when the multidirectional coupling operatively attaches the work platform to the external structure.

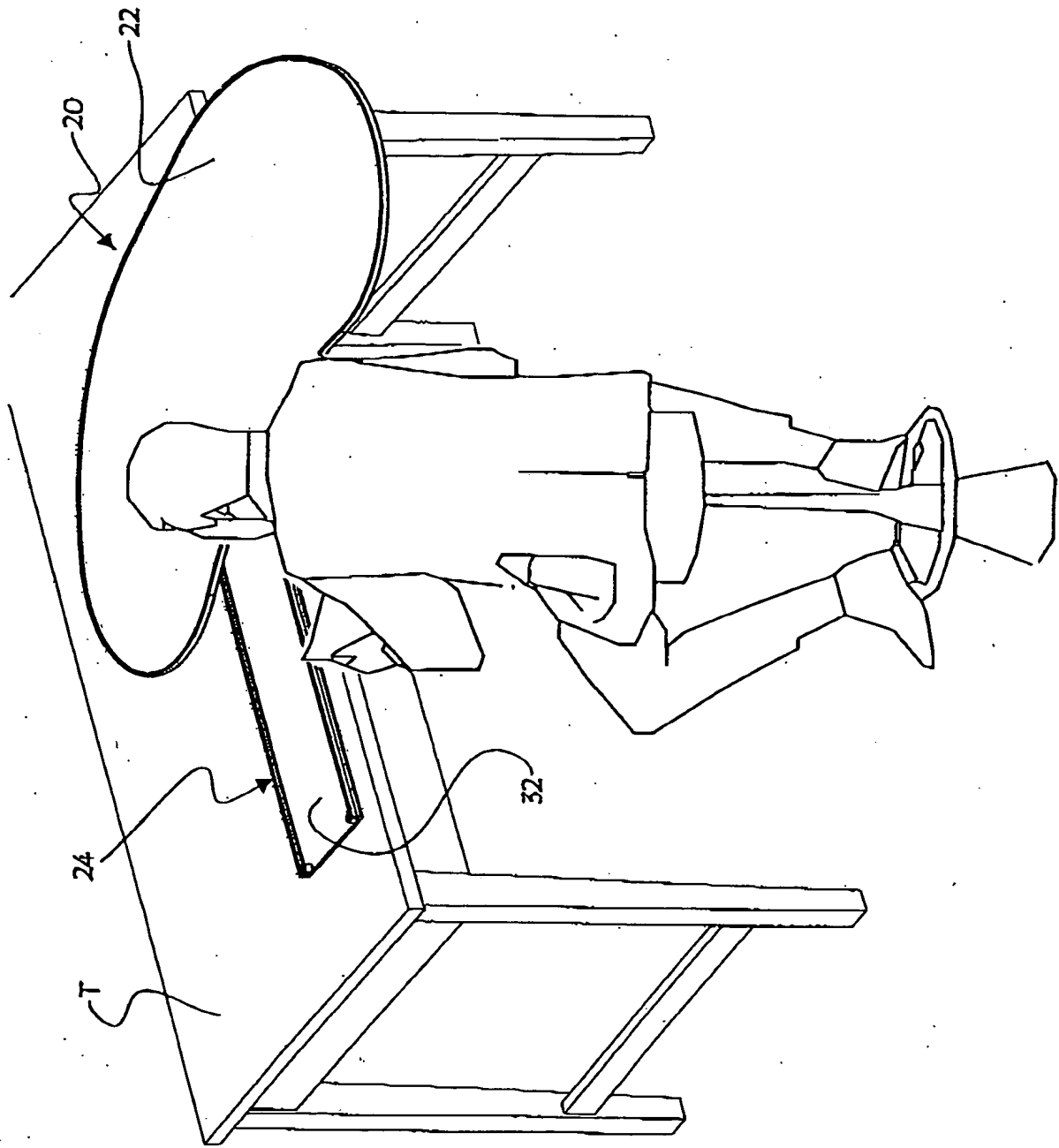


Fig.1

Fig.2

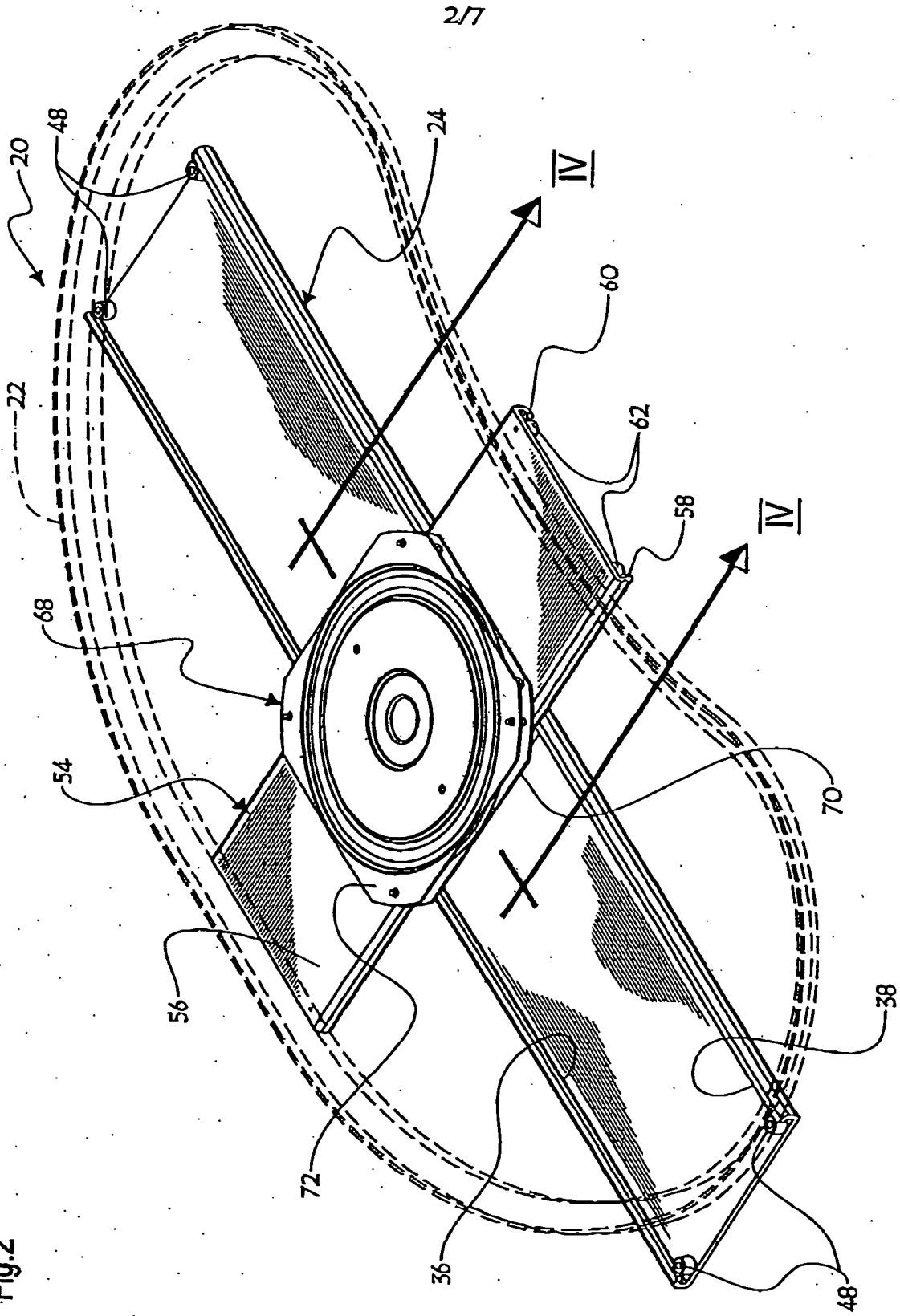


Fig.3

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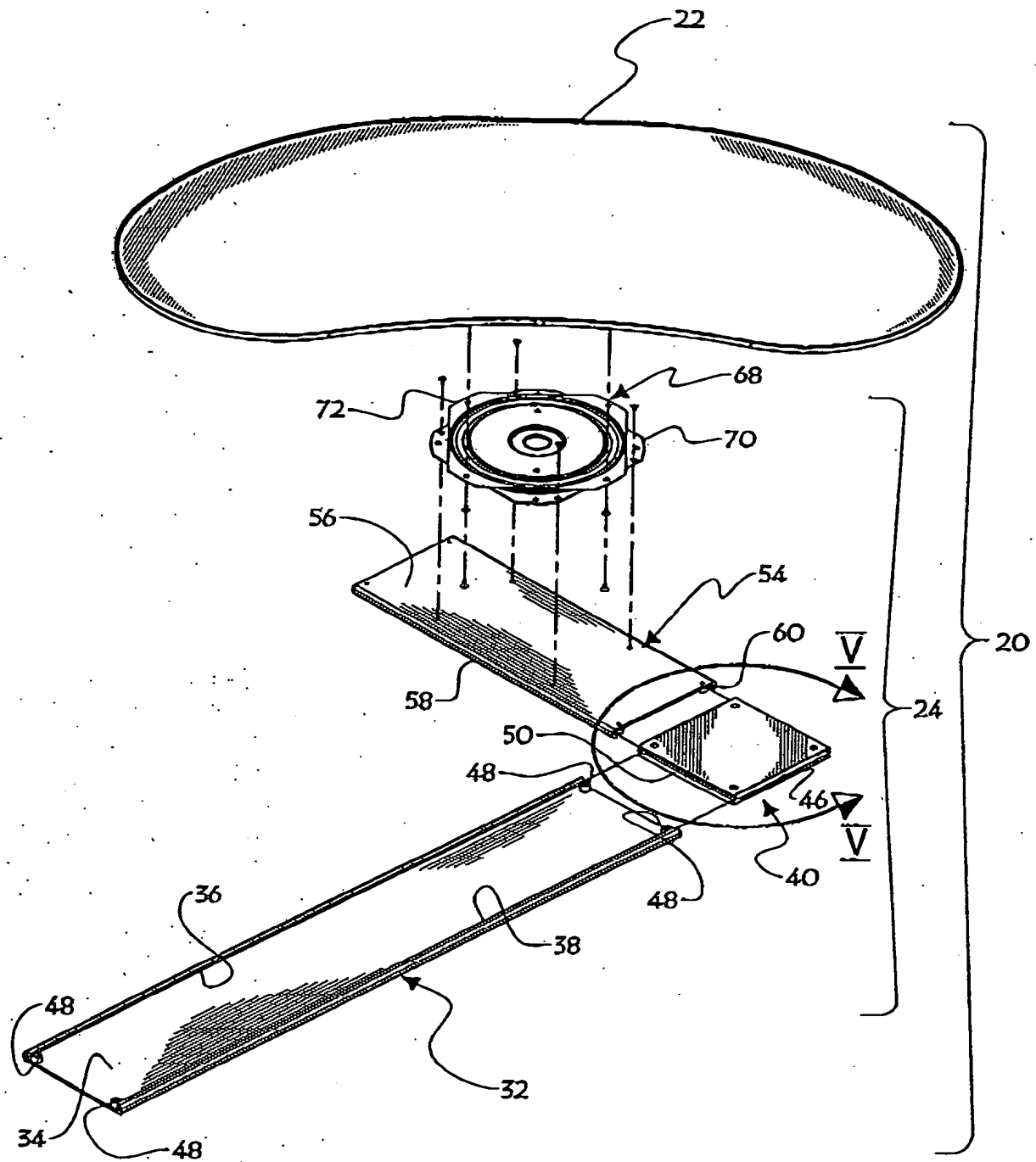


Fig.4

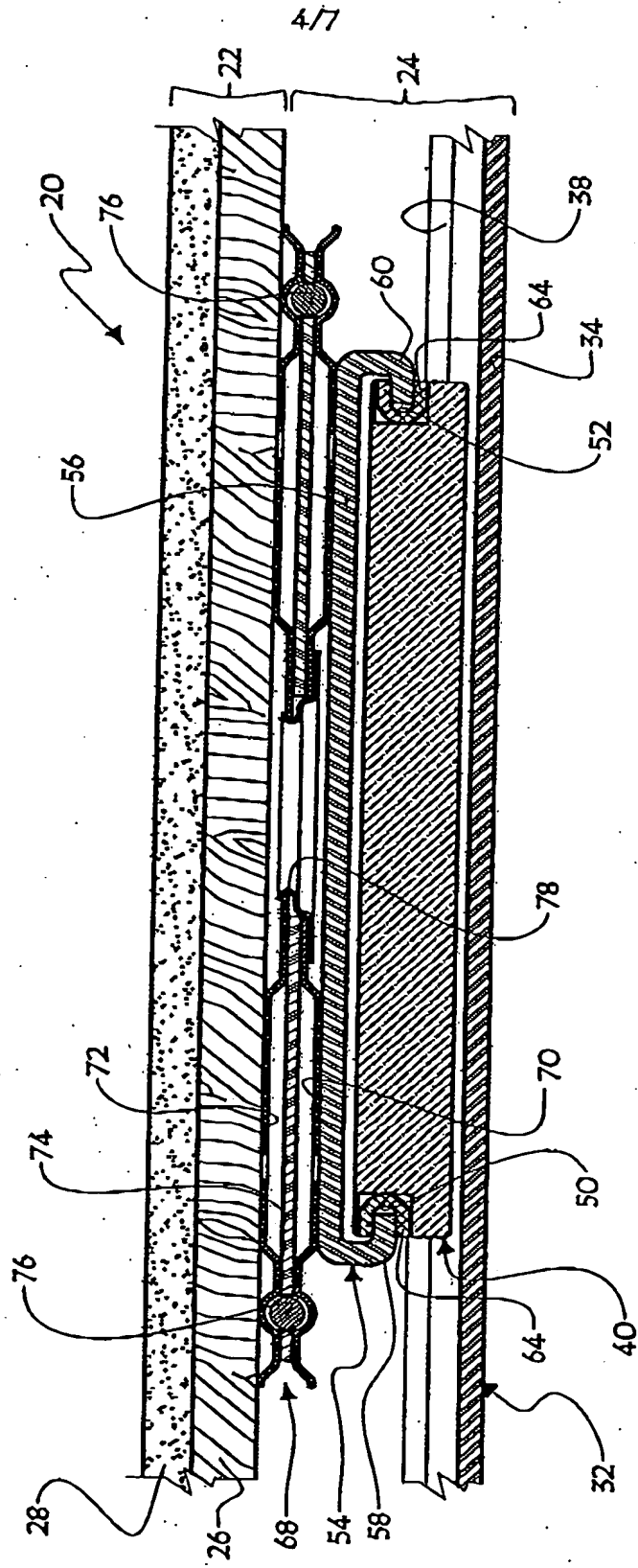


Fig.5

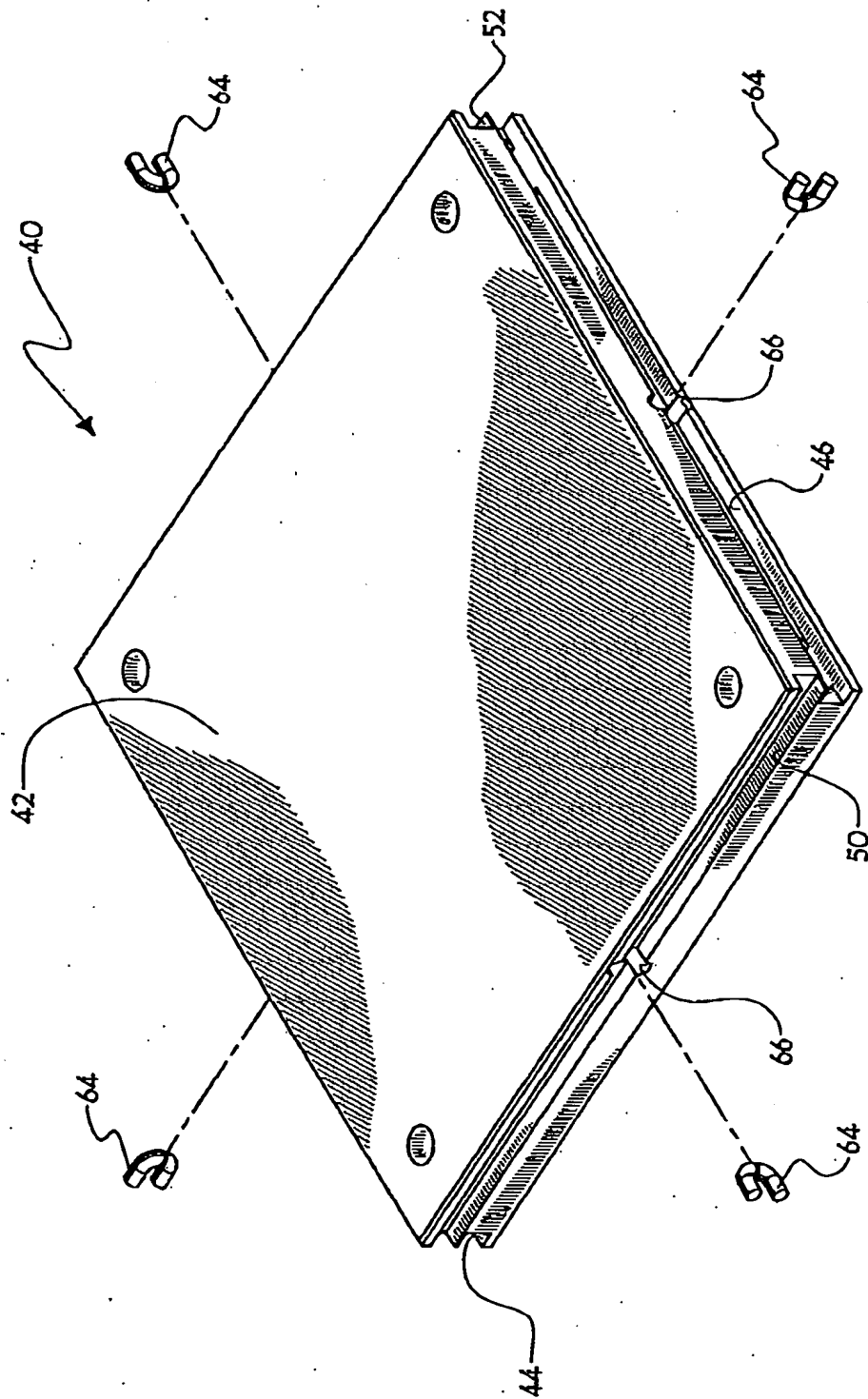
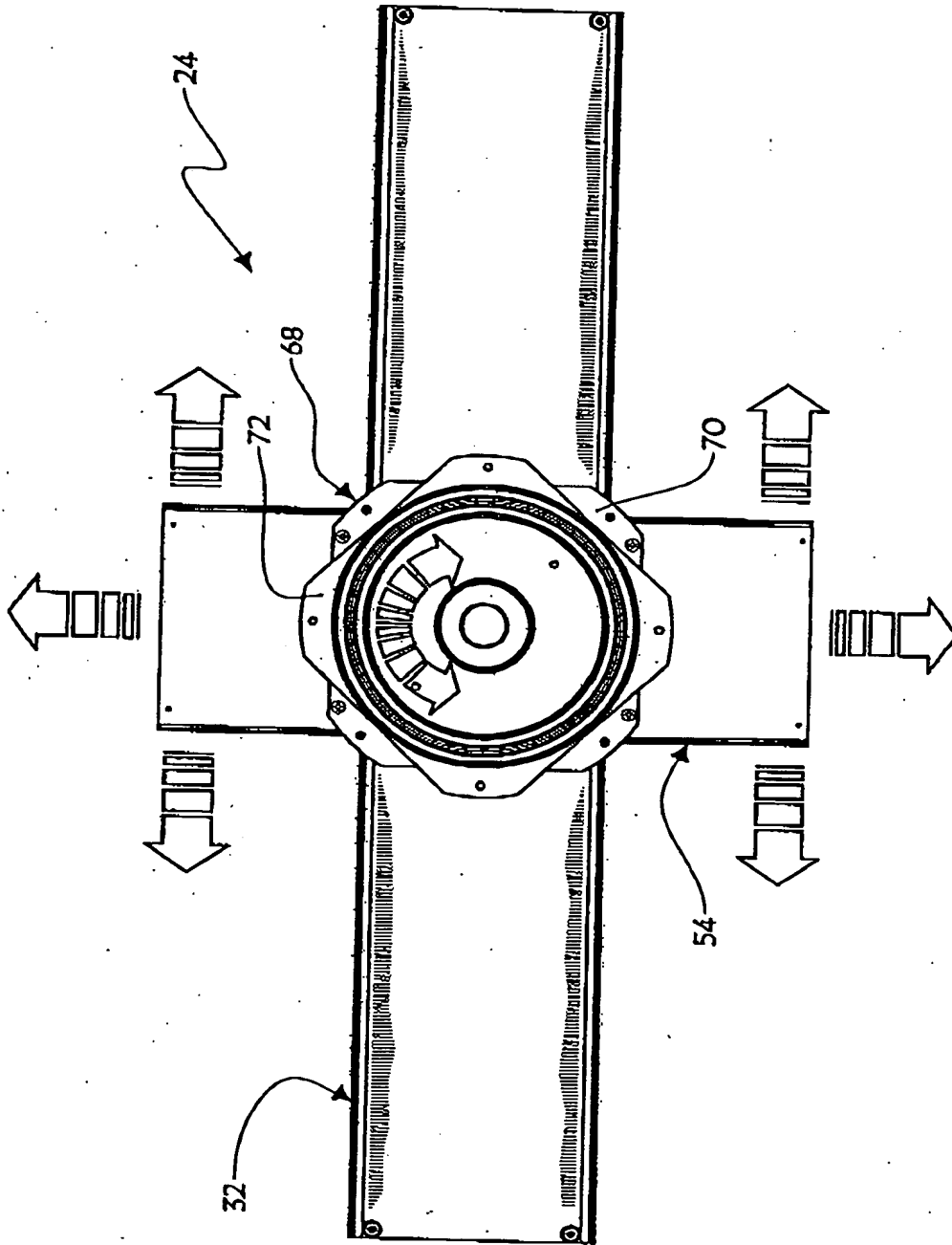
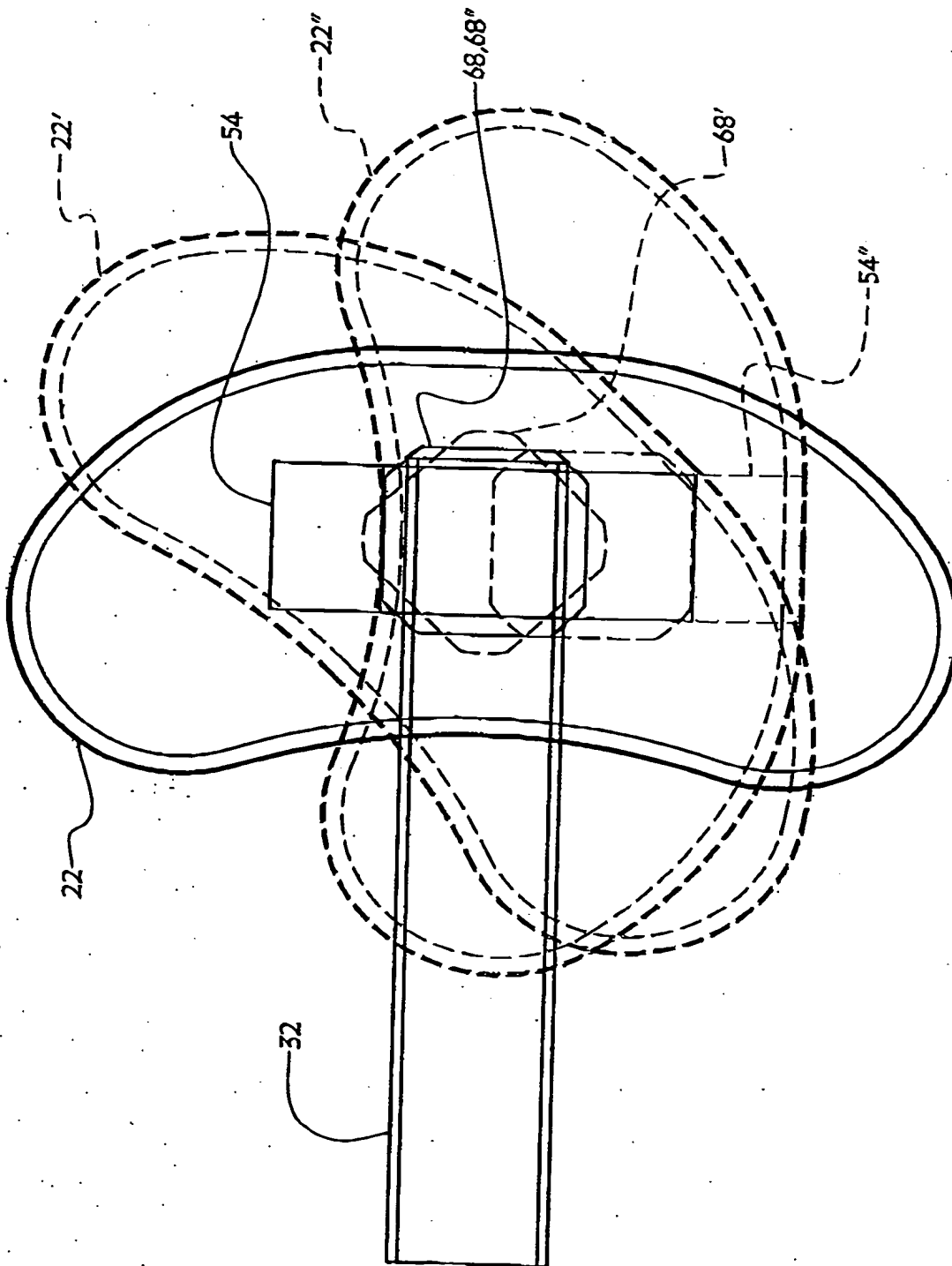


Fig.6



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